IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of	)	
	)	
Kar Yan Tam *et al.*	)	Group Art Unit: 2132
	)	
Application No.: 09/965,831	)	Examiner: Benjamin E. Lanier
	)	
Filed: October 1, 2001	)	Confirmation No.: 3978
	)	
For: METHODS FOR EMBEDDING DATA IN DIGITAL AUDIO DATA	)	

APPELLANTS' OPENING BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This appeal is from the decision of the Examiner in the Final Office Action dated May 20, 2008. Appellants filed a Notice of Appeal on August 20, 2008.

Appellants have previously paid the Notice of Appeal and Appeal Brief fees on June 27, 2007 and September 27, 2007, respectively. Along with the Notice of Appeal filed August 20, 2008, Appellants authorized the Commissioner to charge the difference between the increased Notice of Appeal fee ($255.00) and the amount previously paid ($250.00), which was $5.00. Accordingly, the Commissioner is hereby authorized to charge the difference between the increased Appeal Brief fee ($270.00) and the amount previously paid ($250.00), which is $20.00.

The Commissioner is hereby authorized to charge any further appropriate fees under 37 C.F.R. §§ 1.16, 1.17, and 1.21 that may be required, and to credit any overpayment, to Deposit Account No. 02-4800.

I. REAL PARTY IN INTEREST

The real party in interest is Hong Kong University of Science and Technology, the assignee of Appellants' entire right, title and interest in this application.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences within the meaning of 37 C.F.R. § 41.37(c)(1)(ii) known to Appellants or their undersigned counsel.

III. STATUS OF CLAIMS

Claims 1 and 3-36 (reproduced in the attached Appendix), which are under final rejection, are pending in this application.

Claim 2 has been canceled.

Claims 25 and 27 stand finally rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 25 and 27 stand finally rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter which applicant regards as the invention.

Claims 18, 19, 21, and 25-28 stand finally rejected under 35 U.S.C. § 102(e) as anticipated by Katayama U.S. Patent Pub. No. 2002/0027994.

Claims 1, 5, 8, 9-13 and 15-28 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Downs U.S. Patent No. 6,226,618 and Katayama.

Claims 6, 7 and 14 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama and the Schneier document Applied Cryptography, Second Edition, 1996, John Wiley & Sons, Inc., pp. 351-353 and 355.

Claims 3, 4, 29, 30 and 33-36 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama and Tian U.S. Patent No. 6,714,683.

Claims 31 and 32 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama, Tian and Rhoads U.S. Patent No. 5,636,292.

Claims 1 and 3-36 are on appeal.

IV. STATUS OF AMENDMENTS

There are no pending amendments to the appealed claims.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Exemplary embodiments encompassed by Appellants' claims are directed to a method and apparatus in which an audio signal is watermarked (page 9, lines 9-14). The watermarked audio signal is split into at least two separate sections where the watermark information is spread over both sections (page 11, lines 6-17).

The watermark includes copyright information used for copyright control, such as parameters that stipulate whether the audio signal may be copied and the number of times played under the user's license (page 9, lines 12-15). The first section of the watermark signal is distorted so that it may not be played without the use of a key, which is embedded in the second section of the audio signal (page. 11, lines 6-17).

Because the watermark signal is spread over all sections of the audio signal, including the portion holding the key, any attempt to alter the watermark will destroy the embedded key so that the first section of the audio signal can no longer be recovered and played without distortion (page 13, lines 16-21). As a result, the embedded key indirectly protects the watermark. In addition, because the key is

embedded in the audio content of the second section of the audio signal, the second section cannot be removed, because doing so would corrupt the key for unlocking the first section (paragraph beginning a page 11, line 18). As a result, the first section could not be played without distortion.

The following table maps Appellants' independent claims to those portions of the disclosure that support the recited features.

Claim #	Claim element	Support
Claim 1	A method of embedding watermarking data in an audio signal, comprising the steps of: (a) incorporating watermarking information into said audio signal, to form a watermarked audio signal	pg. 8, lines 12-15; pg. 9, lines 9-15
	(b) sectioning said watermarked audio signal into at least two sections each section having audio content, each of said sections corresponding to a respective time period of said audio signal,	pg. 9, lines 16-18; pgph bridging pages 10 and 11
	(c) marking at least one of said sections whereby said sections may be identified,	pg. 9, lines 16-18
	(d) generating distortion in a first one of said sections of said signal in a manner recoverable by a key obtainable from at least one other section having audio content,	pg. 10, lines 3-9
	(e) appending said distorted section to said at least one other section to form a composite signal comprising a distorted section and at least one undistorted section.	pg. 10, lines 9-10
Claim 18	A watermarked audio signal stored in a memory or a computer readable medium comprising at least two sections, each section having audio content and corresponding to a respective time period of said audio signal, said sections including a first section which is distorted in a manner recoverable by means of a key obtainable from audio content in at least one other section.	pg. 9, lines 9-18 pg. 10, lines 3-9; pgph bridging pages 10 and 11

Claim 23	An apparatus for embedding watermarking data in an audio signal, comprising: (a) means for incorporating watermarking information into said audio signal to form a watermarked audio signal,	pgph bridging lines 10-11; means includes device configured through programming code to execute a robust watermarking function
	(b) means for sectioning said watermarked audio signal into at least two sections each having audio content, each section corresponding to a respective time period of said audio signal,	pg. 9, lines 9-18; pg. 10, line 13 - pg. 1, line 5; means includes device configured through programming code to execute a watermarking function; pgph bridging pages 10 and 11
	(c) means for marking at least one of said sections whereby said sections may be identified,	pg. 11, lines 6-17; means includes device configured through programming code to execute a robust watermarking with section information
	(d) means for generating distortion in one of said sections of said signal in a manner recoverable by a key obtainable from at least one other section having audio content, and	pgph bridging pages 11 and 12; means includes device configured through programming code to execute a pseudo-random number generator function
	(e) means for appending said distorted section to said at least one other section to form a composite signal comprising a distorted section and at least one undistorted section.	pg. 10, lines 9-10
Claim 25	A method for including an advertisement with audio data in an audio signal comprising, providing or creating an audio signal comprising a first section having audio content and an advertisement section having audio content, said first section and said advertisement section corresponding to respective time periods of said audio signal,	pg. 9, lines 9-12; pgph bridging pages 10 and 11
	generating distortion of said first section in a manner recoverable by a key obtainable from said advertisement section,	pg. 10, lines 3-8; pgph bridging pages 11 and 12
	appending said distorted first section to said advertisement section wherein said key is obtainable from said audio content in said advertisement section.	pg. 10, lines 9-10; pg. 12, lines 9-11

Claim 26	A method for including a trial listening section with audio data in an audio signal comprising, sectioning said audio signal into a first section and a trial listening section, said first section and trial listening section corresponding to respective time periods of said audio signal,	pg. 9, lines 9-21; pgph bridging pages 10 and 11
	generating distortion of said first section in a manner recoverable by a key obtainable from said trial listening section,	pg. 10, lines 3-9; pgph bridging pages 11 and 12
	appending said distorted first section to said trial listening section, wherein the key is obtainable from audio content in said trial listening section.	pg. 10, lines 9-10; pg. 12, lines 9-11
Claim 27	A method for including an advertisement section and a trial listening section with audio data in an audio signal, including sectioning said signal into a first section, an advertisement section, and a trial listening section, said sections corresponding to respective time periods of said audio signal, marking at least one of said sections whereby said sections may be identified,	pgph bridging pages 9 and 10; pgph bridging pages 10 and 11
	generating distortion in said first section in a manner recoverable by a key obtainable from at least one of said advertisement and trial listening sections, and	pg. 10, lines 3-9; pgph bridging pages 11 and 12
	appending said distorted first section to said advertisement and trial listening sections to form a composite signal,	pg. 10, lines 9-10; pg. 12, lines 9-11
	wherein said key is obtainable from said audio content in said advertisement section.	pg. 8, lines 3-5; pg. 10, lines 5-9
Claim 28	A method of restricting access to a part of a media signal, comprising the steps of: (a) sectioning said signal into at least two sections each having media content, each section corresponding to a respective period of time of said signal,	pg. 9, lines 9-18; pgph bridging pages 10 and 11
	(b) marking at least one of said sections whereby said sections may be identified,	pg. 9, lines 16-19; pg. 11, lines 6-17
	(c) generating distortion in one of said sections of said signal in a manner recoverable by a key obtainable from or more sections having media content, wherein said key is, obtainable from said media content in said one or more other sections, and	pg. 10, lines 3-9; pgph bridging pages 11 and 12

	(d) appending said distorted section to said one or more other sections to form a composite signal comprising a distorted section and at least one undistorted section.	pg. 10, lines 9-10; pg. 12, lines 9-11
Claim 29	A method of embedding watermarking data in a media content signal, comprising the steps of: (a) incorporating watermarking information into said media content signal using a robust watermarking technique to form a watermarked media content signal,	pg. 8, lines 12-17; pg. 9, lines 4-8
	(b) generating distortion in at least a part of said watermarked media content signal in a manner recoverable by a key, and	pg. 10, lines 3-10; pgph bridging pages 11 and 12
	(c) embedding said key in at least a part of said watermarked media content signal using a fragile data hiding technique, whereby if said watermarking information is corrupted, altered or removed said embedded key is rendered unobtainable from said media content signal.	pgph bridging pages 8 and 9
Claim 33	A watermarked media content signal stored in a memory or on a computer readable medium, comprising: (a) a robust watermark layer comprising watermark information,	pg. 8, lines 12-17
	(b) a fragile quality control information layer comprising a key, and	pgph bridging pages 8 and 9
	(c) a media content layer having one or more sections comprising media content, said section or at least one of said sections if there is more than one section, being distorted in a manner recoverable by use of said key in the fragile quality control information layer;	pg. 7, lines 15-17; pg. 8, lines 2-11; pgph bridging pages 8-9
	whereby if said robust watermark layer is altered, deleted or corrupted the fragile quality control information layer is rendered unreadable such that said key cannot be obtained from it.	pg. 9, lines 4-8

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellants request review of the following grounds of rejection:

A. Whether claims 25 and 27 fail to comply with the written description requirement under 35 U.S.C. § 112, first paragraph.

B. Whether claims 25 and 27 are indefinite for failing to particularly point out and distinctly claim subject matter which applicant regards as the invention under 35 U.S.C. § 112, second paragraph.

C. Whether claims 18, 19, 21 and 25-28 are anticipated under 35 U.S.C. § 102(e) by Katayama U.S. Patent Pub. No. 2002/0027994.

D. Whether claims 1, 5, 8, 9-13 and 15-28 are unpatentable under 35 U.S.C. § 103(a) over Downs U.S. Patent No. 6,226,618 and Katayama.

E. Whether claims 6, 7 and 14 are unpatentable under 35 U.S.C. § 103(a) over Downs, Katayama and the Schneier document Applied Cryptography, Second Edition, 1996, John Wiley & Sons, Inc., pp. 351-353 and 355.

F. Whether claims 3, 4, 29, 30 and 33-36 are unpatentable under 35 U.S.C. § 103(a) over Downs, Katayama and Tian U.S. Patent No. 6,714,683.

G. Whether claims 31 and 32 are unpatentable under 35 U.S.C. § 103(a) over Downs, Katayama, Tian and Rhoads U.S. Patent No. 5,636,292.

VII. ARGUMENT

A. THE EXAMINER IMPROPERLY REJECTED CLAIMS 25 AND 27 UNDER 35 U.S.C. § 112, FIRST PARAGRAPH, AS FAILING TO COMPLY WITH THE WRITTEN DESCRIPTION REQUIREMENT.

The Examiner erred in rejecting claims 25 and 27 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

According to the Action, the claims allegedly contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, according to the Action, the claims require the claimed advertisement section to correspond to a respective

time period of the audio signal, which is not allegedly supported by the specification. The Action continues that paragraph 45 of the (published) specification allegedly shows that the advertisement section contains a digitized audio signal corresponding to an advertisement, not the main audio material. Appellants respectfully disagree that written description support for claim 25 and 27 is lacking.

Referring to Appellants' FIG. 1, a digital audio data file in an embodiment may be considered as comprising three layers: an audio layer, a robust watermark layer, and a fragile quality control information layer. The audio layer can include three sections: an advertisement section, a trial section and a restricted section. The advertisement section can contain a digitized audio signal corresponding to an advertisement. This may be compressed, e.g., MP3, or uncompressed. The trial section can contain a portion of the main audio material that is intended to enable a prospective purchaser to sample the audio material before deciding whether or not to purchase it. The restricted section contains the proprietary material itself and may be compressed or uncompressed.

FIG. 2 is a block diagram illustrating how the digital audio data file is assembled in an embodiment. Beginning on the left of the figure, the audio signal can be assembled by adding audio advertising material to the main content, e.g., a song or sequence of songs. The audio signal that is thus assembled is then watermarked by adding copyright, license and/or user information or the like using a robust data hiding technique.

The audio signal is then sectioned into three parts marked as "Ad" (advertisement), "Trial" (a section of the main content to be provided for trial listening) and "Restricted" (the main content material).

By way of example, in the paragraph bridging pages 10-11 of the submitted

specification, the audio signal may be a pulse code modulation (PCM) signal. The PCM signal may itself either be compressed or uncompressed (e.g., MP3 format) by the addition of a compression module. If the audio signal is a PCM signal, the watermarking may be achieved by using the standard robust watermarking function robustMark(PCM_signal KEY1, MESSAGE), where the PCM_signal is the PCM audio signal, and KEY1 and MESSAGE are supplied externally, with MESSAGE being the copyright or the like information that is to be included as a watermark encoded as binary sequence. The function robustMark(PCM_signal, KEY1, MESSAGE) will return a watermarked PCM signal PCM_signal' that replaces the original PCM signal.

This watermarked signal is then sectioned into three sections PCM_ad (advertisement), PCM_tr (trial), and PCM_re (restricted). The section information specifies the starting time T_ad, T_tr, and T_re of the advertisement, trial and restricted sections respectively. For example, if the PCM signal is sampled at 44.1 kHz, 16 bits, stereo, and assuming that the left and right channel samples are stored alternately, (i.e., if two bytes is the left channel, and the next two bytes is the right channel), the offset (in bytes) of the trial listening section specified by time T_tr is equal to time x sampling frequency x bytes per sample x number of channels = T_tr*44100*2*2 bytes.

In view of the above, e.g., that the section information specifies the starting time T_ad of the advertisement section, Appellants respectfully submit that there is more than adequate support in the written description for the claimed advertisement section to correspond to a respective time period of the audio signal.

Accordingly, the Examiner erred when he improperly rejected claims 25 and 27 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

B. THE EXAMINER IMPROPERLY REJECTED CLAIMS 25 AND 27 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH, AS BEING INDEFINITE FOR FAILING TO PARTICULARLY POINT OUT AND DISTINCTLY CLAIM SUBJECT MATTER WHICH APPLICANT REGARDS AS THE INVENTION.

The Examiner erred in rejecting claims 25 and 27 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter which applicant regards as the invention.

According to the Action, claims 25 and 27 require the claimed advertisement section to correspond to a respective time period of the audio signal, which allegedly renders the claim indefinite because it is unclear what the claimed advertisement section is intended to include. The Action asserts that as suggested by the name of the section, and specification, the advertisement section should include an advertisement of some sort. However, according to the Action, the claims require the advertisement section to include the actual audio content. This allegedly causes the claim as recited to be unclear as to the contents of the advertisement section. Appellants again respectfully disagree for at least the same reasons discussed above regarding the rejection of claims 25 and 27 under 35 U.S.C. § 112, first paragraph.

To reiterate, Appellants' audio layer can include three sections: an advertisement section, a trial section and a restricted section. The advertisement

section can contain a digitized audio signal corresponding to an advertisement. The audio signal can be assembled by adding audio advertising material to the main content, e.g., a song or sequence of songs.

In view of the above, Appellants respectfully submit that there is nothing unclear or inconsistent about what the claimed advertisement section is intended to include.

Accordingly, the Examiner erred when he improperly rejected claims 25 and 27 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter which applicant regards as the invention.

C. THE EXAMINER IMPROPERLY REJECTED CLAIMS 18, 19, 21 AND 25-28 UNDER 35 U.S.C. § 102(e) AS ANTICIPATED BY KATAYAMA U.S. PATENT PUB. NO. 2002/0027994.

The Examiner erred in rejecting claims 18, 19, 21 and 25-28 under 35 U.S.C. § 102(e) as anticipated by Katayama U.S. Patent Pub. No. 2002/0027994.

As set forth in MPEP § 2131, to anticipate a claim, the reference must teach every element of the claim. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The United States Court of Appeals for the Federal Circuit recently emphasized that "unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102." *Net MoneyIN v. Verisign*, No. 2007-1565, slip op. at 17-18 (Fed. Cir. Oct. 20, 2008) (emphasis added).

The rejection fails to meet this requirement because the Office Action does not establish that Katayama teaches every element of the claims arranged or combined in the same way as recited in the claims.

Independent claim 18 is not anticipated by Katayama

Independent claim 18 recites a watermarked audio signal stored in a memory or a computer readable medium comprising at least two sections. Each section has audio content and corresponds to a respective time period of the audio signal. The sections include a first section that is distorted in a manner recoverable by way of a key obtainable from audio content in at least one other section.

As claimed, sectioning of the signal into time periods has certain advantages that Katayama cannot provide. For example, the composite signal can easily be constructed by appending the different sections to each other. There is no need for a complicated synthesizing means 308, as shown in Fig. 5B of Katayama.

Appellants respectfully submit that this same combination of elements is neither disclosed nor suggested by Katayama. For example, Katayama fails to disclose that each section corresponds to a respective time period of the audio signal. On the contrary, in Katayama, as acknowledged by the Examiner, each audio signal is separated by a band separation filter into a plurality of frequency bands (see paragraph 78, Fig. 4B of Katayama). Therefore, Katayama fails to disclose all of the features of claim 18.

Katayama has six different embodiments describing many different configurations. However, Katayama fails to disclose or suggest sectioning of a signal into two or more sections corresponding to respective time periods of the

signal and generating distortion in one of the sections of the signal in a manner recoverable from a key obtainable in the other section. Furthermore, none of the other references cited by the Examiner discloses sectioning of a signal into two or more sections corresponding to respective time periods of the signal.

In view of the above, Appellants respectfully submit that claim 18 is patentable over Katayama.

Independent claim 25 is not anticipated by Katayama

Independent claim 25 recites a method for including an advertisement with audio data in an audio signal comprising providing or creating an audio signal comprising a first section having audio content and an advertisement section having audio content where the first section and the advertisement section correspond to respective time periods of the audio signal. The method includes generating distortion of the first section in a manner recoverable by a key obtainable from the advertisement section and appending the distorted first section to the advertisement section wherein the key is obtainable from the audio content in the advertisement section.

As demonstrated above for claim 18, Katayama fails to disclose or suggest this same combination of features.

Additionally, regarding the advertisement section, the claimed subject matter can prevent the advertisement from being removed because the advertisement contains a key necessary for removing the distortion from the main content section of the signal. The arrangement disclosed in Katayama cannot protect an advertisement in this way.

Therefore, Appellants respectfully submit that claim 25 is also patentable over Katayama.

Independent claim 26 is not anticipated by Katayama

Independent claim 26 recites a method for including a trial listening section with audio data in an audio signal comprising sectioning the audio signal into a first section and a trial listening section where the first section and trial listening section correspond to respective time periods of the audio signal. The method includes generating distortion of the first section in a manner recoverable by a key obtainable from the trial listening section and appending the distorted first section to the trial listening section wherein the key is obtainable from audio content in the trial listening section.

As demonstrated above for claims 18 and 25, Katayama fails to disclose or suggest this same combination of features.

Therefore, Appellants respectfully submit that claim 26 is also patentable over Katayama.

Independent claim 27 is not anticipated by Katayama

Independent claim 27 recites a method for including an advertisement section and a trial listening section with audio data in an audio signal. The method includes sectioning the signal into a first section, an advertisement section, and a trial listening section. The sections correspond to respective time periods of the audio signal. The method also includes marking at least one of the sections whereby the sections may be identified, generating distortion in the first section in a manner recoverable by a key obtainable from at least one of the advertisement and trial listening sections and appending the distorted first section to the advertisement and trial listening sections to form a composite signal. The key is obtainable from audio content in the advertisement section.

As demonstrated above for claims 18 and 25, Katayama fails to disclose or suggest this same combination of features.

Therefore, Appellants respectfully submit that claim 27 is also patentable over Katayama.

Independent claim 28 is not anticipated by Katayama

Independent claim 28 recites a method of restricting access to a part of a media signal and includes sectioning the signal into at least two sections each having media content, each section corresponding to a respective period of time of the signal, marking at least one of the sections whereby the sections may be identified, generating distortion in one of the sections of the signal in a manner recoverable by a key obtainable from or more sections having media content, wherein the key is obtainable from the media content in the one or more other sections and appending the distorted section to the one or more other sections to form a composite signal comprising a distorted section and at least one undistorted section.

As demonstrated above for claims 18 and 25, Katayama fails to disclose or suggest this same combination of features.

Therefore, Appellants respectfully submit that claim 28 is also patentable over Katayama.

Dependent claims 19 and 21 are not anticipated by Katayama

Since claims 19 and 21 incorporate the claim elements of claim 18, along with further limitations, this logic also disposes of the rejection of those claims.

Accordingly, the Examiner erred when he improperly rejected claims 18, 19, 21 and 25-28 under 35 U.S.C. § 102(e) as anticipated by Katayama U.S. Patent Pub. No. 2002/0027994.

D. THE EXAMINER IMPROPERLY REJECTED CLAIMS 1, 5, 8, 9-13 AND 15-28 UNDER 35 U.S.C. § 103(a) AS UNPATENTABLE OVER DOWNS U.S. PATENT NO. 6,226,618 AND KATAYAMA.

The Examiner erred in rejecting claims 1, 5, 8, 9-13 and 15-28 under 35 U.S.C. § 103(a) as unpatentable over Downs U.S. Patent No. 6,226,618 and Katayama.

35 U.S.C. § 103(a) states "[a] patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains" (emphasis added). In addition, MPEP § 2141(II) states, "the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries." The factual inquiries include "[a]scertaining the differences between the claimed invention and the prior art" (emphasis added).

According to MPEP § 2143, when combining prior art elements according to known methods, the rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in

the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395-96 (2007).

Independent claim 1 is not obvious over Downs and Katayama

Independent claim 1 recites a method of embedding watermarking data in an audio signal that includes incorporating watermarking information into the audio signal to form a watermarked audio signal, sectioning the watermarked audio signal into at least two sections, each section having audio content, each of the sections corresponding to a respective time period of the audio signal, marking at least one of the sections whereby the sections may be identified, generating distortion in a first one of the sections of the signal in a manner recoverable by a key obtainable from at least one other section having audio content, and appending the distorted section to the at least one other section to form a composite signal comprising a distorted section and at least one undistorted section.

Appellants respectfully submit that this same combination of elements is neither taught nor suggested by Downs and Katayama, viewed alone or in combination.

As shown, claim 1 recites that each of the at least two sections corresponds to a respective time period of the audio signal. Neither Downs nor Katayama discloses sectioning of a signal into at least two sections each corresponding to a respective time period and generating distortion in one of the sections in a manner recoverable by a key obtainable from at least one other section of the signal. As the claimed feature could not be derived from either Katayama or Downs,

Appellants respectfully submit that the claims are non-obvious.

Additionally, claim 1 recites among other features, "generating distortion in a first one of said sections of said signal". In contrast, Downs discloses the use of "encryption." One of ordinary skill would recognize that "encryption" and "distortion" are not the same. For example, an "audio signal" is by definition playable. After it has been distorted, it is still playable but only in distorted form. On the other hand, an encrypted signal cannot be played back (not even in distorted form) until it is first unencrypted. Support for Appellants' interpretation of "distorted" can be found at page 18, lines 2-3 and page 4, lines 1 to 3 of Appellants' disclosure, which refers to distorted playback and provides an example of distorting the signal by adding pseudo-random noise.

Moreover, claim 1 recites "generating distortion in a first one of said sections of said signal in a manner recoverable by a key obtainable from at least one other section having audio content." In other words, a second section of the signal contains information that can be used to recover a first section of the signal. In comparison, Downs discloses that the key for decrypting the Content 113 is not the Content S.C. package, rather the key is in the Metadata SC package, which is a wholly separate data package that is generated separately and stored in a separate location. The Content S.C. and the Metadata S.C. packages cannot reasonably be interpreted as being part of the 'same signal' and therefore Downs fails to disclose this feature of claim 1.

Furthermore, Appellants respectfully disagree with the Examiner's contention that Katayama and Downs could be combined in the manner described in the Action. The purpose of Katayama is to have a signal that may be played back in low-quality form or high-quality form if the user has a key for unlocking a high-quality

portion of the file.

In contrast, the purpose of Downs is to encrypt a Content S.C. so that it may only be played back if the user has a key. In Downs, the user first browses a vendor website, which contains a list of available files for download and may contain a sample audio clip. If the user decides to purchase some music, then the corresponding Content S.0 is downloaded from a content storage. Any sample audio clip available from the website is completely separate from the Content S.C.; as a result, there is no reason for a person skilled in the art to combine Katayama and Downs in the manner described. In Downs, an audio clip is already available from the vendor website. Therefore, there would be no point in making a complicated modification to the Content S.C. to have low and high quality sections or to add further keys.

Moreover, as discussed above, even if Downs and Katayama were combined, the resulting combination would fail to result in the structure, method steps and advantages of Appellants' claims, as there would be no sectioning by "time period."

"Rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (*In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). *See also*, *KSR*, 550 U.S. at __, 82 USPQ2d at 1396 (*quoting* Federal Circuit statement with approval)). Here, the Examiner has not articulated, for instance, that each element of the applied references performs the same function as it would separately; that one of ordinary skill in the art could have combined the applied references; and that the result of the purported combination would have been recognized as predictable by one of ordinary skill in the art. (*KSR*, 550 U.S. at __, 82 USPQ2d at 1395; *Sakraida v. AG*

Pro, Inc., 425 U.S. 273, 282, 189 USPQ 449, 453 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 62-63, 163 USPQ 673, 675 (1969); *Great Atlantic & P. Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152, 87 USPQ 303, 306 (1950); MPEP § 2142).

Therefore, Appellants respectfully submit that claim 1 is not obvious over Downs and Katayama.

Dependent claims 5, 8, 9-13, 15-17 and 24 are not obvious over Downs and Katayama

Since claims 5, 8, 9-13, 15-17 and 24 incorporate the claim elements of claim 1, along with further limitations, this logic also disposes of the rejection of those claims.

Independent claim 18 is not obvious over Downs and Katayama

For at least the same reasons discussed above regarding why claim 18 is not anticipated by Katayama and the discussion above regarding why claim 1 is not obvious over Downs and Katayama, Appellants respectfully submit that claim 18 is not obvious over Downs and Katayama.

Dependent claims 19-22 are not obvious over Downs and Katayama

Since claims 19-22 incorporate the claim elements of claim 18, along with further limitations, this logic also disposes of the rejection of those claims.

Independent claim 23 is not obvious over Downs and Katayama

For at least the same reasons discussed above regarding why claim 1 is not obvious over Downs and Katayama, Appellants respectfully submit that claim 23 is not obvious over Downs and Katayama.

Independent claim 25 is not obvious over Downs and Katayama

For at least the same reasons discussed above regarding why claim 25 is not anticipated by Katayama and the discussion above regarding why claim 1 is not obvious over Downs and Katayama, Appellants respectfully submit that claim 25 is not obvious over Downs and Katayama.

Independent claim 26 is not obvious over Downs and Katayama

For at least the same reasons discussed above regarding why claim 26 is not anticipated by Katayama and the discussion above regarding why claim 1 is not obvious over Downs and Katayama, Appellants respectfully submit that claim 26 is not obvious over Downs and Katayama.

Independent claim 27 is not obvious over Downs and Katayama

For at least the same reasons discussed above regarding why claim 27 is not anticipated by Katayama and the discussion above regarding why claim 1 is not obvious over Downs and Katayama, Appellants respectfully submit that claim 27 is not obvious over Downs and Katayama.

Independent claim 28 is not obvious over Downs and Katayama

For at least the same reasons discussed above regarding why claim 28 is not anticipated by Katayama and the discussion above regarding why claim 1 is not obvious over Downs and Katayama, Appellants respectfully submit that claim 28 is not obvious over Downs and Katayama.

Additionally, regarding claims 10-12 and 20-22, the Examiner alleges that Downs discloses that the content can store an advertisement object. In this respect, the Examiner refers to column 85, line 50 of Downs. Appellants respectfully disagree. Column 85 of Downs describes the user display 1510 of a Player Application 195, i.e., it refers to a media player. It does not refer to the content of an audio file.

This should be clear from the list of other components in column 85. For example, it should be clear that the "delete button," "copy to CD button," "purchase button," "play-list pause" and "play-list management window" are features of a media player, and could not possibly be part of an audio file or Content S.C. The "label/ provider/ store advertisement object" referred to in line 50 probably refers to an online advertisement that may not even have any relation to the downloaded audio file. The advertisement certainly is not "audio" content as recited by claims 10-12 or 20-22. Appellants also note that in attempting to use the technology of Katayama, it would be impossible to provide an "advertisement section" from only the high frequency bands of the signal.

Claims 25-27 also contain the distinguishing feature that the section of the signal corresponds to the time period of the audio signal. This feature is not disclosed in any of the cited references.

Accordingly, the Examiner erred when he improperly rejected claims 1, 5, 8, 9-13 and 15-28 under 35 U.S.C. § 103(a) as unpatentable over Downs U.S. Patent No. 6,226,618 and Katayama.

E. THE EXAMINER IMPROPERLY REJECTED CLAIMS 6, 7 AND 14 UNDER 35 U.S.C. § 103(a) AS UNPATENTABLE OVER DOWNS, KATAYAMA AND THE SCHNEIER DOCUMENT APPLIED CRYPTOGRAPHY.

The Examiner erred in rejecting claims 6, 7 and 14 under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama and Schneier.

The rejection of claims 6, 7 and 14 is based on the rejection of claim 1 as being obvious over Downs and Katayama. For the reasons presented above, these documents do not support the rejection of that claim.

Furthermore, Schneier does not make up for the fundamental deficiencies in Downs and Katayama and the Action does not rely on Schneier to provide the missing pieces. The Action acknowledges that Downs fails to disclose or suggest the use of a hashing function with respect to the features recited in claims 6, 7, and 14. The Action relies on the Schneier document in an effort to remedy this deficiency. While not acquiescing to its teachings as alleged by the Examiner, even assuming, *arguendo*,that the interpretation of the Schneier document is accurate, Appellants respectfully submit that the Schneier document does not remedy the deficiencies of Downs and Katayama with respect to sectioning a watermarked audio signal into at least two sections, and generating distortion in a first section of the audio signal in a manner recoverable by a key obtainable from at least one other section having audio content, as claimed. Rather, the Schneier document is merely directed to cryptographic techniques and is applied for its discussion on hash functions.

For at least these reasons, therefore, the rejection of claims 6, 7 and 14 is likewise not supportable, since they depend from claim 1, and thereby incorporate the claim elements of claim 1.

Accordingly, the Examiner erred when he improperly rejected claims 6, 7 and 14 under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama and Schneier.

F. THE EXAMINER IMPROPERLY REJECTED CLAIMS 3, 4, 29, 30 AND 33-36 UNDER 35 U.S.C. § 103(a) AS UNPATENTABLE OVER DOWNS, KATAYAMA AND TIAN U.S. PATENT NO. 6,714,683.

The Examiner erred in rejecting claims 3, 4, 29, 30 and 33-36 under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama and Tian.

Independent claim 29 is not obvious over Downs, Katayama and Tian

Independent claim 29 recites a method of embedding watermarking data in a media content signal. The method includes incorporating watermarking information into the media content signal using a robust watermarking technique to form a watermarked media content signal, generating distortion in at least a part of the watermarked media content signal in a manner recoverable by a key, and embedding the key in at least a part of the watermarked media content signal using a fragile data hiding technique, whereby if the watermarking information is corrupted, altered or removed, the embedded key is rendered unobtainable from the media content signal.

Appellants respectfully submit that this same combination of elements is neither taught nor suggested by Downs, Katayama and Tian, viewed alone or in combination. With respect to claim 29, the Examiner alleges that it would be obvious to combine the features of Downs, Katayama and Tian in order to arrive at the claimed subject matter. Appellants again respectfully disagree.

First, contrary to the Examiner's reasoning, Downs does not disclose "embedding said key in at least a part of said watermarked media content signal." In Downs, the watermarked media content is provided in the Content S.C. The Content S.C. comprises media Content 113 and non-media (metadata). The Content S.C. does not contain a key for decrypting the Content 113. At column 18, step 127, Downs states that "encrypted Content 113 and metadata are then packed into a Content S.C." Therefore, the Content S.C. contains only Content 113 and (non-audio) metadata.

As common sense suggests, the key for decrypting Content 113 is provided in a separate package. Column 8, step 126 of Downs confirms this: "the Encrypted

Symmetric Key, metadata and other information about the Content 113 is then packed into a Metadata S.C. by the S.C. Pack Tool 152." Therefore, the key is packed separately into a Metadata S.C., which is separate from the Content S.C. Thus, Downs fails to disclose that the key is embedded in the watermarked media content signal, as recited in claim 29.

Furthermore, a person skilled in the art would have no reason to combine Downs and Katayama. The purpose of Katayama is to enable a user to hear a downgraded version of the audio file before making a purchase. However, this result is already achieved by Downs, which makes an audio clip available on a website shop, which the user can listen to before purchasing a key and downloading the Content S.C. Therefore, as the user can already preview the media file in Downs, there is no reason to modify it to contain another key or further level of encryption, as in Katayama.

Even if a person skilled in the art did combine Downs and Katayama in the way suggested by the Examiner, which Appellants submit they would not, the combination would still not achieve the method as defined by claim 29. Neither Downs nor Katayama disclose "embedding said key in at least a part of said watermarked media content signal using a fragile data hiding technique, whereby if said watermarked information is corrupted, altered or removed said embedded key is rendered unobtainable from said media content signal."

The Examiner suggests that Tian will remedy this deficiency. Appellants again respectfully disagree. Although Tian does disclose embedding a semi-fragile watermark so that alteration to the watermark signal can be detected, this would not lead to the claimed combination defined in claim 29. First, the whole description of Tian is directed to detecting alterations of the watermarked signal (see Tian's

abstract, column 2, lines 9-25 and column 5, lines 7-10). Even the discussion of a "fragile" watermark in column 6, lines 36-55 suggests using the absence of a watermark only as a means of detecting that the watermarked signal has undergone some form of transformation. Thus, the emphasis in Tian is on whether the watermark is present or its level of degradation. There is no disclosure in Tian that the watermark might contain a "key" used for recovering a distorted section of the media content.

Furthermore, even if a person skilled in the art did decide to combine Tian and Downs, the only likely result is that they would choose to embed the watermark using a robust or semi-fragile method. Downs already contains a watermark, and if a person skilled in the art thought to look at Tian, they would apply Tian's teaching to the watermark disclosed in Downs. It is extremely unlikely that they would decide that the "key" disclosed in Katayama should be embedded by way of a "fragile watermark." Appellants' claims provide a signal that has both a robust watermark and a key embedded using a "fragile data hiding technique." This has a synergistic effect neither disclosed nor suggested in the cited references. It means that if the signal is disrupted in a way sufficient to corrupt, alter or remove the robust watermark, the fragile embedded key will certainly be destroyed, making it impossible to play back the signal in undistorted form.

The information disclosed or suggested in Tian is simply that robust and fragile watermarking techniques exist. Tian's disclosure would not lead a person skilled in the art to make the creative leap to arrive at Appellants' claims. Especially, as none of the references provide any teaching to direct the skilled person in this direction. Certainly, none of the references suggests, teaches or even hints at the synergistic effect of having both a robust watermark and a fragily embedded key.

Finally, although the Examiner asserts that Downs discloses a "robust" watermark because the watermark is able to withstand compression and encryption, it is far from certain that the watermark would withstand the audio signal being split into a large number of different frequency components and then re-assembled using a synthesizer as described as in Katayama. Therefore, as a practical matter, even if the three references were combined in the manner suggested by the Examiner, it is uncertain that the resulting signal would still contain robust watermark information after it had been split into frequency components and re-assembled.

Again, "[r]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (*In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). *See also*, *KSR*, 550 U.S. at __, 82 USPQ2d at 1396 (*quoting* Federal Circuit statement with approval)). Here, the Examiner has not articulated, for instance, that each element of the applied references performs the same function as it would separately; that one of ordinary skill in the art could have combined the applied references; and that the result of the purported combination would have been recognized as predictable by one of ordinary skill in the art. (*KSR*, 550 U.S. at __, 82 USPQ2d at 1395; *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282, 189 USPQ 449, 453 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 62-63, 163 USPQ 673, 675 (1969); *Great Atlantic & P. Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152, 87 USPQ 303, 306 (1950); MPEP § 2142).

Dependent claim 30 is not obvious over Downs, Katayama and Tian

Since claim 30 incorporates the claim elements of claim 29, along with further limitations, this logic also disposes of the rejection of claim 30.

Independent claim 33 is not obvious over Downs, Katayama and Tian

Independent claim 33 recites a watermarked media content signal stored in a memory or on a computer readable medium. The claim includes a robust watermark layer comprising watermark information, a fragile quality control information layer comprising a key, and a media content layer having one or more sections comprising media content, the section or at least one of the sections if there is more than one section being distorted in a manner recoverable by use of the key in the fragile quality control information layer, whereby if the robust watermark layer is altered, deleted or corrupted, the fragile quality control information layer is rendered unreadable such that the key cannot be obtained from it.

For at least the same reasons discussed above regarding why claim 29 is not obvious over Downs, Katayama and Tian, Appellants respectfully submit that claim 33 is not obvious over Downs, Katayama and Tian.

Dependent claim 34 is not obvious over Downs, Katayama and Tian

Since claim 34 incorporates the claim elements of claim 33, along with further limitations, this logic also disposes of the rejection of claim 34.

Dependent claims 3, 4, 35 and 36 are not obvious over Downs, Katayama and Tian

Since claims 3, 4, 35 and 36 incorporate the claim elements of claim 1, along with further limitations, this logic also disposes of the rejection of those claims. Furthermore, Tian does not make up for the fundamental deficiencies in Downs and Katayama and the Action does not rely on Tian to provide the missing pieces.

Accordingly, the Examiner erred when he improperly rejected claims 3, 4, 29, 30 and 33-36 under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama and Tian.

G. THE EXAMINER IMPROPERLY REJECTED CLAIMS 31 AND 32 UNDER 35 U.S.C. § 103(a) AS UNPATENTABLE OVER DOWNS, KATAYAMA, TIAN AND RHOADS U.S. PATENT NO. 5,636,292.

The Examiner erred in rejecting claims 31 and 32 under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama, Tian and Rhoads.

Claim 31 depends from independent claim 29 and additionally recites that watermarking information is embedded across the at least two sections and the key is embedded across said at least two sections. Claim 32 depends from claim 31.

The rejection of claims 31 and 32 is based on the rejection of claim 29 as being obvious over the Downs, Katayama and Tian. For the reasons presented above, these documents do not support the rejection of that claim. For at least these reasons, therefore, the rejection of claims 31 and 32 is likewise not supportable, since they both depend from claim 29, and thereby incorporate the claim elements of claim 29.

Additionally, Downs does not disclose embedding a key in audio data as recited in claim 31, nor the embedding of a key across two sections of the audio data, with one of the sections being distorted.

Furthermore, Rhoads does not make up for the fundamental deficiencies in Downs, Katayama and Tian and the Action does not rely on Rhoads to provide the missing pieces. Rhoads is directed to a technique of embedding authentication and identification information in a signal (see Abstract). Rhoads discloses embedding an

N-bit value onto an entire signal through the addition of a very low amplitude encodation signal that has the look of pure noise (col. 5, lines 46-49). However, Rhoads fails to disclose or suggest sectioning of a watermarked signal or generating distortion as recited in Appellants' claims. Claim 31 recites that the watermark extends across at least two sections of the audio content and that they key is embedded across said two sections as well. This feature makes the signal very secure, because the watermark cannot be removed without risking destroying the key, and neither section of the signal can be removed without destroying the watermark and making it impossible to recover the key.

Appellants respectfully submit that a *prima facie* case of obviousness has not been established and request that this rejection be withdrawn.

Accordingly, the Examiner erred when he improperly rejected claims 31 and 32 under 35 U.S.C. § 103(a) as unpatentable over Downs, Katayama, Tian and Rhoads.

VIII. CLAIMS APPENDIX

See attached Claims Appendix for a copy of the claims involved in this appeal.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.

CONCLUSION

For the reasons explained above, the rejections of claims 1 and 3-36 should be withdrawn.

In the event that the Patent and Trademark Office determines that an extension and/or other relief is required, Appellants petition for any required relief, including extensions of time, and authorize the Commissioner to charge the necessary amount due in connection with the filing of this document to Deposit Account No. 02-4800.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

Claims involved in the appeal of U.S. Patent Application Serial No. 09/965,831:

1. A method of embedding watermarking data in an audio signal, comprising the steps of:

(a) incorporating watermarking information into said audio signal, to form a watermarked audio signal,

(b) sectioning said watermarked audio signal into at least two sections each section having audio content, each of said sections corresponding to a respective time period of said audio signal,

(c) marking at least one of said sections whereby said sections may be identified,

(d) generating distortion in a first one of said sections of said signal in a manner recoverable by a key obtainable from at least one other section having audio content, and

(e) appending said distorted section to said at least one other section to form a composite signal comprising a distorted section and at least one undistorted section.

2. (Canceled)

3. A method as claimed in claim 35 wherein said distortion is generated by creating a pseudo-random number sequence for adding as pseudo-random noise to said first section, and wherein said pseudo-random number sequence is embedded in said at least one other section to enable said random noise to be subsequently removed.

4. A method as claimed in claim 35 wherein the first section is distorted by means of a scrambling function.

5. A method as claimed in claim 1 wherein said key is obtained directly from a sequence of bits contained in said audio content of at least one other section.

6. A method as claimed in claim 5 wherein said key is obtained by applying a hashing function to the bit sequence of said audio content of said at least one other section.

7. A method as claimed in claim 6 wherein the output of the hashing function is added to the bitstream of said first section to create said distortion.

8. A method as claimed in claim 5 wherein a bitstream of said first section is subject to a scrambling function to create said distortion.

9. A method as claimed in claim 1 wherein said first section comprises a section to which access is to be restricted.

10. A method as claimed in claim 1 wherein said at least one other section comprises an advertisement.

11. A method as claimed in claim 1 wherein said at least one other section comprises a trial listening section.

12. A method as claimed in claim 1 wherein said at least one other section comprises an advertisement section and a trial listening section.

13. A method as claimed in claim 1 wherein said audio signal is compressed after watermarking.

14. A method as claimed in claim 13 wherein said first section of said compressed signal is distorted by means of a scrambling function that receives as a key the output of a hashing function that acts upon said at least one other section.

15. A method as claimed in claim 14 wherein said audio signal is compressed in MP3 format and said scrambling function acts upon the bits contained within MP3 frames.

16. A method of playing back an audio signal having data embedded within it by the method of claim 1, comprising;

(a) reading said composite signal,

(b) identifying said sections,

(c) obtaining said key from said at least one undistorted section, and

(d) recovering said distorted section.

17. A method as claimed in claim 16 wherein said distorted section is recovered in real time without being written to memory.

18. A watermarked audio signal stored in a memory or a computer readable medium comprising at least two sections, each section having audio content and corresponding to a respective time period of said audio signal, said sections including a first section which is distorted in a manner recoverable by means of a key obtainable from audio content in at least one other section.

19. A watermarked audio signal as claimed in claim 18 wherein said first section is a section to which access is restricted.

20. A watermarked audio signal as claimed in claim 18 wherein said at least one other section is an advertisement section.

21. A watermarked audio signal as claimed in claim 18 wherein said at least one other section comprises a trial listening section.

22. A watermarked audio signal as claimed in claim 18 wherein said at least one other section comprises an advertisement section and a trial listening section.

23. An apparatus for embedding watermarking data in an audio signal, comprising:

(a) means for incorporating watermarking information into said audio signal to form a watermarked audio signal,

(b) means for sectioning said watermarked audio signal into at least two sections each having audio content, each section corresponding to a respective time period of said audio signal,

(c) means for marking at least one of said sections whereby said sections may be identified,

(d) means for generating distortion in one of said sections of said signal in a manner recoverable by a key obtainable from at least one other section having audio content, and

(e) means for appending said distorted section to said at least one other section to form a composite signal comprising a distorted section and at least one undistorted section.

24. Apparatus for the playing back an audio signal having data embedded within it by the method of claim 1, comprising;

(a) means for reading said composite signal,

(b) means for identifying said sections,

(c) means for obtaining said key from said at least one undistorted section, and

(d) means for recovering said distorted section.

25. A method for including an advertisement with audio data in an audio signal comprising, providing or creating an audio signal comprising a first section having audio content and an advertisement section having audio content, said first section and said advertisement section corresponding to respective time periods of said audio signal, generating distortion of said first section in a manner recoverable by a key obtainable from said advertisement section, and appending said distorted first section to said advertisement section wherein said key is obtainable from said audio content in said advertisement section.

26. A method for including a trial listening section with audio data in an audio signal comprising, sectioning said audio signal into a first section and a trial listening section, said first section and trial listening section corresponding to respective time periods of said audio signal, generating distortion of said first section

in a manner recoverable by a key obtainable from said trial listening section, and appending said distorted first section to said trial listening section, wherein the key is obtainable from audio content in said trial listening section.

27. A method for including an advertisement section and a trial listening section with audio data in an audio signal, including sectioning said signal into a first section, an advertisement section, and a trial listening section, said sections corresponding to respective time periods of said audio signal, marking at least one of said sections whereby said sections may be identified, generating distortion in said first section in a manner recoverable by a key obtainable from at least one of said advertisement and trial listening sections, and appending said distorted first section to said advertisement and trial listening sections to form a composite signal, wherein said key is obtainable from audio content in said advertisement section.

28. A method of restricting access to a part of a media signal, comprising the steps of:

(a) sectioning said signal into at least two sections each having media content, each section corresponding to a respective period of time of said signal,

(b) marking at least one of said sections whereby said sections may be identified,

(c) generating distortion in one of said sections of said signal in a manner recoverable by a key obtainable from or more sections having media content, wherein said key is, obtainable from said media content in said one or more other sections, and

(d) appending said distorted section to said one or more other sections to form a composite signal comprising a distorted section and at least one undistorted section.

29. A method of embedding watermarking data in a media content signal, comprising the steps of:

(a) incorporating watermarking information into said media content signal using a robust watermarking technique to form a watermarked media content signal,

(b) generating distortion in at least a part of said watermarked media content signal in a manner recoverable by a key, and

(c) embedding said key in at least a part of said watermarked media content signal using a fragile data hiding technique, whereby if said watermarking information is corrupted, altered or removed said embedded key is rendered unobtainable from said media content signal.

30. A method according to claim 29 wherein said media content signal is an audio signal.

31. A method according to claim 29 wherein said media content signal has at least two sections, said watermarking information is embedded across said at least two sections and said key is embedded across said at least two sections.

32. A method according to claim 31 wherein said media content signal is an audio signal.

33. A watermarked media content signal stored in a memory or on a computer readable medium, comprising:

(a) a robust watermark layer comprising watermark information,

(b) a fragile quality control information layer comprising a key, and

(c) a media content layer having one or more sections comprising media content, said section or at least one of said sections if there is more than one section, being distorted in a manner recoverable by use of said key in the fragile quality control information layer;

whereby if said robust watermark layer is altered, deleted or corrupted the fragile quality control information layer is rendered unreadable such that said key cannot be obtained from it.

34. A watermarked media content signal according to claim 33 wherein said media content is audio content.

35. A method according to claim 1 wherein said key is embedded in said audio content of said at least one other section.

36. A method according to claim 35 wherein said key is embedded using a fragile data hiding technique.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None